Contribution ID: **539** Type: **Poster Presentation**

Simulation Study on Heat Flow Coupled Heat Transfer in Porous Media

Tuesday, 23 May 2023 10:30 (1h 30m)

Aiming at the changes of temperature field and velocity field caused by high temperature and high pressure fluid injected into reservoir porous medium during heavy oil thermal recovery process, based on Darcy's law, thecoupled equation of heat flow in porous media was established by the finite volume method. Based on the REV-scale porous media model, the effect of permeability and volume fraction of porous media and the injection pressure of hot fluid during thermal recovery on the heat flow coupling heat transfer process in porous media was studied. The results showed that the effect of increasing the permeability on the heat transfer of porous media was better than increasing the inlet pressure, increasing the solid volume fraction and increasing the thermal resistance, resulting in a decrease in heat transfer. Increasing the pressure of the injected hot fluid could increase the heat transfer rate.

Participation

In-Person

References

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Session Classification: Poster

Track Classification: (MS17) Thermal Processes, Thermal Coupling and Thermal Properties of Porous Media: modeling and experiments at different scales